

power. The seventh lens **1070** has a meniscus shape. For example, an object-side surface of the seventh lens **1070** is convex, and an image-side surface thereof is concave. In an alternative example, the object-side surface of the seventh lens **1070** is concave, and an image-side surface thereof is concave.

[0088] The eighth lens **1080** has a refractive power. For example, the eighth lens **1080** has a positive refractive power. At least one surface of the eighth lens **1080** is convex. For example, both surfaces of the eighth lens **1080** are convex.

[0089] The ninth lens **1090** has a refractive power. For example, the ninth lens **1090** has a positive refractive power. At least one surface of the ninth lens **1090** is convex. For example, both surfaces of the ninth lens **1090** are convex.

[0090] The tenth lens **1100** has a refractive power. For example, the tenth lens **1100** has a negative refractive power. The tenth lens **1100** has a meniscus shape. For example, both surfaces of the tenth lens **1100** are concave. The tenth lens **1100** configured as described above may be cemented to an image-side surface of the ninth lens **1090**. In other words, the object-side surface of the tenth lens **1100** is configured with a concave curvature to be able to be enabled to be fit and contact with the image-side surface of the ninth lens **1090**. In accordance with an alternative embodiment, the object-side surface of the tenth lens **1100** is configured with a concave curvature with a curvature corresponding to the image-side surface of the ninth lens **1090** and at a predetermined distance from the image-side surface of the ninth lens **1090**.

[0091] The eleventh lens **1110** has a refractive power. For example, the eleventh lens **1110** has a positive refractive power. At least one surface of the eleventh lens **1110** is convex. For example, both surfaces of the eleventh lens **1110** is convex.

[0092] In the configurations of the lenses as described above, the first lens **1010** are divergently disposed or not in parallel with the second to eleventh lenses **1020** to **1110**. For example, an optical axis of the first lens **1010** may intersect with an optical axis of the second to eleventh lenses **1020** to **1110**.

[0093] The optical imaging system **1000** includes a prism P, a stop ST, a reflecting member M, a filter **1120**, and an image sensor **1130**.

[0094] The prism P is disposed between or adjacent to the first lens **1010** and the second lens **1020**. The prism P disposed as described above refracts light irradiated from the first lens **1010** to the second lens **1020**.

[0095] The stop ST is disposed between the first movable lens group Gm1 and the second movable lens group Gm2 or between the correction lens group Go and the second movable lens group Gm2. In detail, the stop ST is disposed between the seventh lens **1070** and the eighth lens **1080**. The stop ST disposed as described above adjusts an amount of light irradiated from the first movable lens group Gm1.

[0096] The reflecting member M is disposed between the eleventh lens **1110** and the filter **1120**. The reflecting member M reflects light irradiated from the eleventh lens **1110** to the image sensor **1130**.

[0097] The filter **1120** is disposed between the reflecting member M and the image sensor **1130**. The filter **1120** filters infrared rays, or the like, from the light reflected from the reflecting member M.

[0098] The image sensor **1130** includes a plurality of optical sensors. The image sensor **1130** converts an optical signal into an electrical signal.

[0099] The optical imaging system configured as described above may represent aberration characteristics illustrated in FIGS. 2 through 4. FIG. 2 are graphs illustrating aberration curves in a wide angle end position; FIG. 3 illustrates graphs aberration curves in an intermediate end position; and FIG. 4 illustrates graphs aberration curves in a telephoto end position.

[0100] FIG. 5 is a table illustrating characteristics of lenses of the optical imaging system according to the first exemplary embodiment. FIG. 6 is a table illustrating magnitudes of D1, D2, D3, D4, and D5 depending on the wide angle end, the intermediate end, and the telephoto end positions. FIG. 7 is a table illustrating aspherical characteristics of the optical imaging system, according to the first embodiment.

[0101] As seen in FIG. 6, a distance D1 between the first fixed lens group Gf1 and the first movable lens group Gm1 is shortest at the wide angle end and is longest at the telephoto end. Similarly, a distance D4 between the second movable lens group Gm2 and the second fixed lens group Gf2 are shortest at the wide angle end and be longest at the telephoto end.

[0102] In contrast, a distance D2 between the first movable lens group Gm1 and the correction lens group Go is longest at the wide angle end and is shortest at the telephoto end. Similarly, a distance D3 between the correction lens group Go and the second movable lens group Gm2 is longest at the wide angle end and shortest at the telephoto end.

[0103] A distance D5 between the second fixed lens group Gf2 and the image sensor **1130** is constant or substantially constant regardless of the wide angle end, the intermediate end, and the telephoto end.

[0104] An optical imaging system, according to a second embodiment, will be described with reference to FIG. 8.

[0105] The optical imaging system **2000**, according to the second embodiment, includes an optical system including a first lens **2010**, a second lens **2020**, a third lens **2030**, a fourth lens **2040**, a fifth lens **2050**, a sixth lens **2060**, a seventh lens **2070**, and an eighth lens **2080**.

[0106] The lenses configuring the optical imaging system **2000** are grouped into a plurality of lens groups. For example, the first to third lenses **2010** to **2030** configure a first fixed lens group Gf1, the fourth to sixth lenses **2040** to **2060** configure a first movable lens group Gm1, the seventh lens **2070** configures a second movable lens group Gm2, and the eighth lens **2080** configures a second fixed lens group.

[0107] The first movable lens group Gm1 changes an overall focal length of the optical imaging system **2000**. For example, a focal length of the optical imaging system **2000** is changed in a range of 4.90 to 13.70 depending on a position of the first movable lens group Gm1.

[0108] The second movable lens group Gm2 adjusts the overall focal length of the optical imaging system **2000**. For example, the focal length of the optical imaging system **2000** is finely adjusted depending on a position of the second movable lens group Gm2.

[0109] Next, the lenses configuring each lens group will be described in detail.

[0110] The first lens **2010** has a refractive power. For example, the first lens **2010** has a negative refractive power. The first lens **2010** has a meniscus shape. For example, an